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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,849	02/22/2002	Aaron J. Hanna	K35A1056	9641
35219	7590	06/20/2006	EXAMINER	
WESTERN DIGITAL TECHNOLOGIES, INC.			MAGEE, CHRISTOPHER R	
ATTN: SANDRA GENUA			ART UNIT	PAPER NUMBER
20511 LAKE FOREST DR.			2627	
E-118G				
LAKE FOREST, CA 92630			DATE MAILED: 06/20/2006	

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/080,849	HANNA ET AL.	
	Examiner	Art Unit	
	Christopher R. Magee	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 18 April 2006.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-54 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) 15-54 is/are allowed.

6) Claim(s) 1-4,6-8,12 and 13 is/are rejected.

7) Claim(s) 5,9,10 and 14 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see Remarks, pages 15-19, filed 4/18/2006, with respect to the rejection(s) of claim(s) 1-4, 6-8, and 11-14 under Takagi et al. (US 6,721,133 B2) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Owe et al. (US 5,012,369). The new ground (s) of rejection follows:

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

• Claims 1, 6, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Owe et al. (US 5,012,369).

• Regarding claims 1, 6 and 11, Owe discloses a disk drive [col. 1, lines 7-16] having a disk with a recording surface (inherent property of a disk drive), comprising:

a head stack assembly [Figs. 1 and 2], including:

a body portion [col. 5, lines 8-9];

an actuator arm [15] cantilevered from the body portion;

a hinge portion [17], a first surface of the hinge being coupled (i.e., connected, fastened) to the actuator arm [Fig. 1];  
a load beam [11] having a first end and a second end, the first end including a load beam surface that faces and contacts a second surface of the hinge [17], the second surface facing away from the first surface [Embedded Fig. 1];  
a gimbal [12] coupled to the second end of the load beam [11], and a slider [13] coupled to the gimbal.

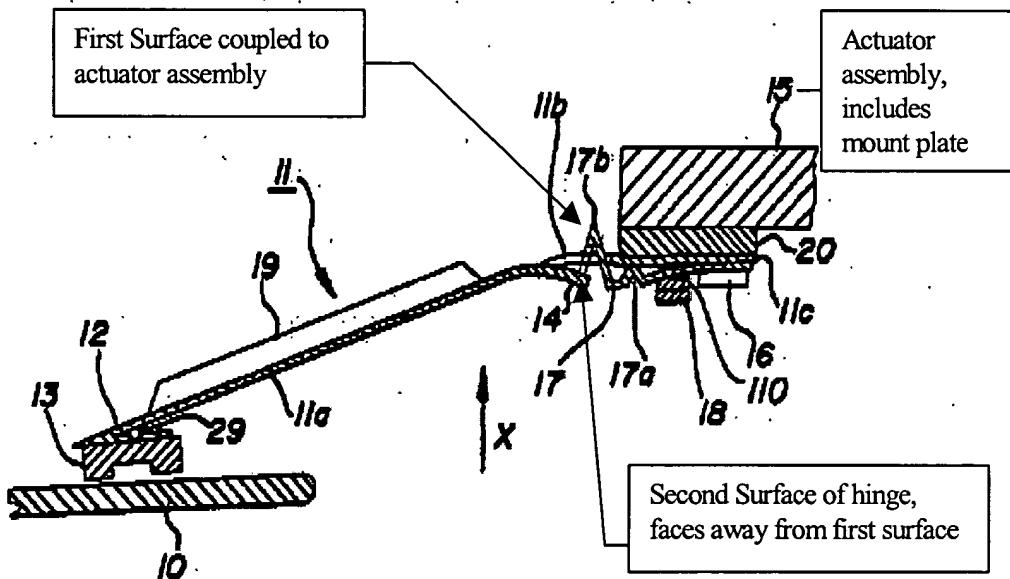
**U.S. Patent**

**Apr. 30, 1991**

**Sheet 1 of 3**

**5,012,369**

**FIG. 1**



***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- Claims 2 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Owe et al. (US 5,012,369) as applied to claims 1 and 6 above, and further in view of Inoue et al. (hereinafter Inoue) (US 6,362,936 B2).
  - Regarding claims 2 and 7, Owe discloses all the features as previously noted, except the mount plate having a thickness greater than 0.22 mm.

Inoue discloses a mount plate having a thickness greater than 0.22 mm [col. 2, lines 60-63].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the mount plate and hinge of Owe with the dimensions as taught by Inoue.

The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to make the mount plate and hinge of Owe with the dimensions as taught by Inoue so as to provide predetermined mechanical characteristics such as natural frequency and stiffness [Inoue; col. 1, lines 30-32].

4. Claims 3, 4, 8, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Owe et al. (US 5,012,369) as applied to claims 1, 6 and 11 above.

- Regarding claims 3 and 12, Owe discloses all the features as previously noted, except the hinge having a thickness greater than 0.05 mm.
- Regarding claims 4 and 13, Owe discloses all the features as previously noted, except the load beam having a thickness greater than 0.12 mm.
- Regarding claim 8, Owe discloses all the features as previously noted, except the hinge having a thickness greater than 0.05 mm and the load beam having a thickness greater than 0.12 mm.

Referring to claims 3, 4, 8, 12 and 13, Owe does not set forth the dimensions in these claims. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the hinge and load beam of Owe with the claimed dimensions through routine experimentation and optimization in the absence of criticality. More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Swain et al.*, 33 CCPA (Patents) 1250, 156 F.2d 239 70 USPQ 412; *Minnesota Mining and Mfg. Co. v Coe*, 69 App. D.C. 217, 99 F. 2d 986, 38 USPQ 213; *Allen et al. v Coe*, 77 App. D.C. 324, 135 F. 2d 11, 57 USPQ 136.

***Allowable Subject Matter***

5. Claims 5, 9, 10 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. Claims 15-54 are allowed. The following is a statement of reasons for the indication of allowable subject matter:

- Claim 15 specifies a suspension for a head stack assembly of a disk drive, which requires:

*“the hinge including a first surface having a first convex portion defining a first radius of curvature, adjacent the first hinge end and adjacent a first concave portion of the first surface, defining a second radius of curvature, adjacent a second convex portion of the first surface, defining a third radius of curvature adjacent a second concave portion of the first surface, adjacent the second hinge end.”*

The closest prior art of record, Jagt et al. (hereinafter Jagt) (US 5,898,543), shows a hinge including a first surface having a first convex portion defining a first radius of curvature, adjacent the first hinge end and adjacent a first concave portion of the first surface, defining a second radius of curvature, adjacent a second convex portion of the first surface, defining a third radius of curvature. Jagt does not show the third radius of curvature adjacent a second concave portion of the first surface adjacent the second hinge end as required by the applicant's claimed invention.

- Claims 23, 27, 32, 37, 42, 47 and 51 specify a load beam for a head gimbal assembly, which requires:

*“the hinge portion defining a radius geometry that includes at least three radii of curvatures configured to lower load beam toward the disk such that a first surface of the hinge portion defines at least two concave portions and at least two convex portions, the first surface of the hinge portion being coupled to the actuator arm.”*

The closest prior art of record, Jagt et al. (hereinafter Jagt) (US 5,898,543), shows the radius geometry includes a first radius of curvature, a second radius of curvature and a third radius of curvature, the first radius being closer to the mount plate than the second radius, the second radius being closer to the mount plate than the third radius, and wherein the third radius is greater than the second radius. Jagt does not show the first surface of the hinge portion defines at least two concave portions and at least two convex portions, the first surface of the hinge portion being coupled to the actuator arm as claimed in the applicant's invention.

***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Magee whose telephone number is (571) 272-7592. The examiner can normally be reached on M-F, 8: 00 am-4: 30 pm.

**PLEASE NOTE** the recent change in art unit designation from art unit 2653 to art unit 2627.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2627

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Christopher R. Magee

Patent Examiner

Art Unit 2627

June 13, 2006

crm



ANDREA WELLINGTON  
SUPERVISORY PATENT EXAMINER